

the fistulous margins are resected. For drawings of this instrument, with one, two, or three prongs, and as modified for transverse or vertical fistulæ, as well as a full explanation of the method of using them, the reader is referred to the last volume of *Guy's Hospital Reports*. T. P.

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ART. XXIV.—*Cancer: A New Method of Treatment*. By W. H. BROADBENT, M. D., London, Assistant Physician to St. Mary's Hospital, &c. 8vo. pp. 28. London: John Churchill & Sons, 1866.

THE main facts contained in this pamphlet were brought before the British Medical Association at its last meeting, but the paper was so curtailed in publication as to defeat the purpose of the author in bringing the subject fully before the profession, and hence he has been led to publish it in its present form.

The idea presented itself to the mind of Dr. Broadbent, that, by means of the hypodermic syringe, some fluid might be injected into a cancerous tumour, which might so far alter its structure, and modify its nutrition, as to retard or arrest its growth. After some reflection acetic acid was selected for the following reasons:—

"1. This acid does not coagulate albumen, and might therefore be expected to diffuse itself through the tumour. The effect would thus not be limited to and concentrated in the point injected.

"2. If it entered the circulation it could do no harm in any way, either by acting as a poison or by inducing embolism.

"3. Acetic acid rapidly dissolves the walls and modifies the nuclei of cells on the microscopic slide, and might be expected to do this when the cells were *in situ*.

"4. It had been applied with advantage to open cancer and to cancerous ulcerations.

"The experiment was made, and it was found that acetic acid, though in healthy tissues it causes very severe smarting and burning, unless very strong, gives little pain when thrown into malignant structure. On the other hand it acts energetically on cancer, but has comparatively little effect on normal structures."

Four cases on which these conclusions are based are given in detail in the pamphlet under notice. These cases Dr. B. thinks "sufficiently establish the correctness of the anticipation formed as to the action of acetic acid—that no unfavourable results arise from absorption of the acid into the blood—that it permeates every part of the tumour more completely than would any fluid coagulating albumen—and that it acts energetically on cancerous structures. Even in a comparatively dilute state, and when it cannot be looked upon as in any sense caustic, it breaks down the substance of malignant tumours. The process seems more like solution than sloughing or suppuration, and is not necessarily attended with pain or constitutional disturbance. The first case furnishes the most striking illustration of the remarkable influence of acetic acid. The result of the first injection went beyond my anticipations, and produced an effect I had not anticipated, and did not at the time desire. As I could see the patient only at rather long intervals, the caution always necessary in early experiments of this kind had to be redoubled. In a similar case a much shorter time would now suffice to bring about the same result. It is certain, however, that different cases will demand special modifications of the treatment; some may require stronger acid, others weaker; some long intervals between the injections, others short; in some it may be better to throw in the acid quickly; in others very gradually. These points can only be settled by experience.

"It has not yet been demonstrated that a malignant tumour may be entirely and cleanly rooted out at once. At its periphery, where diseased joins on to healthy structure, it has more vitality than in the centre, and in the case referred

to, great difficulty was experienced in removing the portions left behind when the mass of the tumour had been destroyed. Much more pain was given in this attempt than in the previous proceeding. A considerable portion of the wall of the cavity was, however, from the first, denuded of malignant structure, and there seems to be no reason why this should not have been the case at all points, had the injections been more complete. This result should always be aimed at when the removal of an unbroken tumour is undertaken.

"As to the pain resulting from the injection of acetic acid, the difference between cancer and healthy tissue was remarkable in all the cases. In the first: acid, which had caused scarcely any pain when injected in considerable quantity into the substance of the tumour gave rise to acute smarting, when a single drop entered the subcutaneous connective tissue. This was still more strikingly shown in the case of the axillary glands. In the cancer of the rectum the occurrence or not of pain was an invaluable indication as to whether the point of the needle was in the substance of the tumour, or in healthy structures, or free in the canal after passing through a nodule of cancer, or gliding over its surface. The difference was by no means so marked in the case of epithelial cancer of the tongue, and in another instance of this form of cancer I have seen the same thing. Within the last few days I have also found injection of a solid tumour to give considerable pain, and Mr. I. B. Brown, jun., has stated to me that this has occurred in a case under his care, so that immunity from suffering is not always to be counted upon."

The theoretical grounds upon which Dr. B. founded his hope that the vitality and nutrition of cancerous growths might be so far modified as to check their progress and dissemination without necessarily causing their suppuration or sloughing, he states to have been as follows:—

"1. Cancer owes its malignancy, not to any peculiarity of chemical composition, but to its characteristic structure. It is made up of cells (to employ a terminology almost antiquated), which, retaining more or less the fœtal type, retain also the fœtal capacity for indefinite multiplication, but do not undergo development into perfect tissues. To alter these cells will be to put an end to their power of dividing and multiplying, and consequently to arrest the growth of the tumour.

"2. In acetic acid we have an agent which, on the microscopic slide, rapidly effects important changes in cells of every kind, dissolving the cell-wall, and affecting the nucleus. Not coagulating albumen it may diffuse itself through a tumour, and reaching every part equally it may probably produce similar results when the cells are *in situ*.

"Experimentally, it has been seen that acetic acid does diffuse itself as was anticipated, and a striking proof was afforded of this fact in the very first injection practised. Again, it has been found that it attacks the cells so effectually as completely to destroy their vitality and produce solution of the tumour. The point to be determined is, whether it may not be so applied as to stop short of this result and alter the cells, impair their vitality, modify their nutrition, or even dissolve or destroy them, but leave any fully organized tissue, or remains of the invaded structures. The tumour would, in this case, cease to spread, and would shrink and contract."

In considering the application of this treatment to various cases, Dr. B. remarks: "There are two distinct results which may be aimed at: the yet uncertain effect last spoken of, arrest and withering of the tumour, or its death and removal.

"The former might be sought in any example of accessible tumour, in which the skin is not involved. Cases of scirrhus would seem to be those in which success might, with most reason, be hoped for, as more fibrous structure is found in them, and a tendency to shrinking and withering is often seen in this class of tumours.

"The destructive effects may be looked upon as always in our power—whether this should be resorted to in all or in many cases, must be determined by experience. In cancer of the rectum, it offers a valuable means of removing obstruction and relieving pain. In the case described, it has lengthened life. It may, perhaps, do more. In cancer of the uterus it will, probably, be found of

equal or greater service, and the application will certainly be easier than to disease of the rectum.

"In epithelial cancer of the integument, or of the tongue, a difficulty is met with from escape of the fluid at the surface. Experience alone can determine the value of the injection of acetic acid, or its employment in other ways in these cases, as compared with other methods practised.

"Speaking generally, wherever treatment by caustics of whatever kind is to be preferred to removal by the knife, this method would seem to offer greater facility of employment, and to be attended with less pain. In subcutaneous tumours, if the skin were not involved, it might probably be necessary to make an incision when the cancer had been softened down, but in these cases arrest should first be attempted. When a solid tumour has invaded the skin, this will slough and leave an opening through which the *débris* may escape. In open cancer the fungous masses might be removed, and the irregular, foul, and painful ulcer, with its offensive discharge, be replaced by a comparatively clean surface, without fetor or pain."

Dr. B. says he is not prepared to lay down precise rules for the employment of the acid, but his experience inclines him to the use of a large quantity of dilute acid, rather than of a smaller proportion in more concentrated form. The strongest acid he has used has been composed of equal parts of water and of the strong acetic acid of the Pharmacopœia; the weakest, one part to four or five.

"The injection should be gradual, especially when the tumour is dense, as pain may be inflicted either by escape of the acid by the side of the needle, or by the tension caused by the fluid forced in. The indication I shall take for my guidance will be pain. When this attends any operation, I should reduce the strength of the acid and the force of the injection until it is no longer severe, and only when this has proved inoperative go on to more energetic measures. Dr. Richardson's ether spray apparatus will be most useful in preventing pain."

Dr. B. concludes his paper with the expression of his belief that the acid treatment of cancer will be found to be a valuable palliative remedy, if not in some instances curative; and that it will be applicable to cases which have hitherto been beyond the reach of any remedial measures.

Should these anticipations be confirmed by further experience, Dr. Broadbent will have conferred the greatest boon on humanity—a boon which will associate his name with that of Jenner and other great benefactors of mankind.

Dr. Broadbent's paper has attracted considerable attention in England, and several surgeons are now engaged in trying the measure which he has proposed. It is being employed in the cancer wards at the Middlesex Hospital by Mr. Moore and Mr. C. De Morgan, at St. George's by Mr. Holmes, at the Marylebone Infirmary by Dr. Broadbent and Randall, and at the Westminster by Mr. Holt. (See *Med. Times and Gaz.*, Oct. 27, pp. 444-445.)

At the meeting of the Pathological Society of London, Oct. 16, Mr. Moore stated that "having heard Dr. Broadbent's paper at the British Medical Association, he at once adopted the plan recommended. He had since treated three recurrent cancerous tumours by the injection of acetic acid, and the result was that they disappeared—not a trace of them being left. The specimen Mr. Moore exhibited consisted of two cancerous glands, one of which only had been injected. The uninjected gland contained abundance of fusiform and nucleated cells. The injected gland was reduced to a brownish stringy pulp in which pools of oil floated. Under the microscope scarcely any fusiform cells were to be found—about one to four or five fields. There were found, however, corners and angles of cells and pus-corpuscles, granular masses, and abundance of fat.

"In reply to Mr. Lee, Mr. C. H. Moore said that the injection was only practised once. There was but one outward puncture, but the fluid was sent to different parts of the tumour by altering the direction of the point of the syringe.

"Mr. Power mentioned two cases in which this plan had been tried, but he only knew the result in one of them. This patient consulted Mr. Power for a malignant growth of the eyelid. Dr. Broadbent's plan of treatment was adopted,

and with surprising benefit. The tumour rapidly vanished, and Mr. Power believed the injection had really cured the disease."

The actual value of Dr. Broadbent's method of treating cancer cannot yet be determined, but it would seem, from the results thus far obtained, to lead to the hope that it may be beneficial in at least some cases.

ART. XXV.—*Contribution à L'Histoire des Mariages entre Consanguins*; par le Dr. AUGUSTE VOISIN, Méd. de l'Hospice de Bicêtre, etc. Extrait du Tome II. des Mémoires de la Société Anthropologie. 8vo. pp. 32. Paris, 1866.  
*A Contribution to the History of Marriages between Blood Relations.* By Dr. AUGUSTE VOISIN, Physician to the Bicêtre Hospital, Paris, etc.

IN order to collect a series of facts bearing upon the subject of marriages among near relatives, and the results of such unions upon the health, physical or mental development, and duration of life of the offspring, Dr. Voisin took up his residence, during one month of the year 1864, in the village of Batz (*Loire-Inferieure*); a place where marriages among relations is of common occurrence; and made personal observations in respect to the topography, population, pecuniary condition and occupations of the inhabitants, their customs, their health, the duration of their lives, their grade of intelligence, instruction, morality, and religious deportment.

Accurate information was obtained by Dr. V. in reference to the results of 46 marriages—5 of which were between *cousins-germain*, 31 between *second cousins*, and 10 between those of the *fourth degree of consanguinity*; leaving out of the question numerous marriages between relations of the fifth and sixth degrees, of which latter relationship he found to be the greater number of the married couples in the village. The result of the information thus derived, was that in the community of Batz marriages between persons related by blood had no injurious influence upon the children born of such marriages. That among these children there existed no vices of conformation, no mental affections, no idiocy, cretinism, surdmutism, epilepsy, or albinism. Scrofula existed in only one young girl. Sterility is almost unknown. Two only (related in the third degree of consanguinity) of the forty-six pair referred to were childless. Of the remaining 44 couples the offspring amounted in all to 174.

The most part of the children have an intelligence beyond that ordinarily observed at their age; they are lively and cheerful in disposition, and apt to acquire knowledge.

The inhabitants of Batz are longlived—preserving to the end a good degree of bodily vigour and mental power.

From his study of the question as above, Dr. V. has convinced himself that marriages of consanguinity are in no degree injurious to the children born of them, when the father and mother present no indications of any morbid diathesis, or of any hereditary disease, but are in good health, and of robust constitutions, and when they are placed under favourable conditions, climatic and hygienic. That under such circumstances, the marriages of cousins injure in no manner the immediate offspring or the race, but, on the contrary, exalt their condition.

D. F. C.

ART. XXVI.—*Acholic Diseases, comprising Jaundice, Diarrhœa, Dysentery, and Cholera. With a Preliminary Dissertation on Bile, the Biliary Function, and the action of Cholagogues.* By ALEXANDER CHARLES MACLEOD, L. K., Q. C. P. I., etc. etc. 12mo. pp. 230. John Churchill & Sons. London, 1866.

WE do not recollect to have ever perused a medical work of the same size issued within the last half century, in which a system of pathology in relation to